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FROM: Timothy D. MacIntyre Attorney Docket #9432-000238

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COMMENTS:

Ms. Widhalm,

Pursuant to our recent conversation, enclosed is an applicant-initiated interview request. Please contact me at your earliest convenience to let me know when an interview will be convenient for you. I look forward to speaking with you.

Best regards,
Timothy D. MacIntyre

Direct phone number: (248) 641-1230

Applicant Initiated Interview Request

Application No.: 10/614,542 First Named Applicant: S. Chen
Examiner: Angela Widhalm Art Unit: 2152
Status of the Application: Pending Non-final Office Action

Issues to be Discussed:

35 USC § 103

Claims 1-3, 5, 8-10, 13-16, 18, 24, 26-29, 31-37, 39-41, 43, and 45-49 stand rejected under 35 USC § 103 as being unpatentable over Park (U.S. Pub. No. 2003/0031173) in view of "well-known" prior art and Farinacci (U.S. Pat. No. 7,016,351).

Applicants believe that Farinacci does not resolve the shortcomings of Park, and further, that there is no motivation to combine Farinacci with Park. Park provides for swapping addresses between an options field of a packet header and the source and destination address fields of the packet header. This allows Park to provide for a single level of Network Address Translation (NAT) between a private network and a public network. The present disclosure, as claimed, allows for an arbitrary number of NAT levels between private and public networks.

The invention of Park cannot be easily extended to a situation where there are multiple levels of NAT. In Park, addresses are simply swapped between the header and the source or destination address fields. This means that a transmitting host must know a priori the public address of the router located between the transmitting host and the public network. In the present disclosure, as a packet is forwarded through NAT routers to the public network, the routers add their public addresses to a stack within the options field of the packet, thereby building a path for traversing the multiple levels of NAT. For this reason alone, the present disclosure is not simply a multiple-level implementation of Park.

Farinacci does teach placing routing information within a header of a packet. However, Farinacci does not adjust the options field of an incoming packet. Farinacci instead encapsulates the entire packet with a new Layer 3 header, into which Farinacci places routing information. In contrast to Park and the present disclosure, Farinacci is concerned with minimizing the storage and processing requirements of multicast groups. Under Farinacci, only a router that encapsulates a multicast packet must know the distribution tree for a multicast group specified by the multicast packet. This removes the requirement that all routers store distribution information for every multicast group. The encapsulated packet will specify the routing information, relieving all downstream routers of processing duties related to routing.

Neither of these advantages is applicable to the present disclosure, which solves the problem of traversing multiple layers of NAT. The first router encountered by a packet according to the present disclosure does not know routing information- each router performs a small amount of routing processing, as specified by the present disclosure. Farinacci does solve the problem of efficiently storing distribution trees for commonly addressable nodes in multicast groups. If Farinacci desired to traverse multiple NAT layers, Farinacci would need to employ a solution such as the present disclosure for the traversal.

In conclusion, the motivations to combine cited by the Examiner, namely reducing processing time, reducing network bandwidth, and reducing processing time are advantages offered by the invention of Farinacci. These advantages are only applicable when using multicast groups, however. They are inapplicable to hierarchical traversal, without which direct communication between hosts behind multiple layers of NAT is not possible, regardless of processing time or network bandwidth. The present disclosure solves a fundamentally different problem than Farinacci.